

REMARKS

This Amendment is in response to the Office Action dated February 23, 2007 in which claims 1-17 were rejected, the drawings objected to, and the specification objected to. With this Amendment, the specification is amended and claims 1, 2, 5, 7, 8, 13 and 16 are amended. Claims 1-17 remain in the application and are presented for reconsideration and allowance.

Drawings Objections

The drawings were objected to under 37 CFR 1.83(a). As to the pivoting connection between the short “axles” (shafts) 28 and the pivot mount 29, this configuration is old and well known in the art. It is clear in FIG. 3 that the vertically aligned cylindrical ends of the “axles” (shafts) 28 and the pivot mount 29 (the U-shaped clevis) rotate with respect to one another allowing the wheels 26 to pivot. Very similar pivoting connections can be seen in Konop (USP 6, 247, 713); Christenson et. al (USP 4, 762, 421); and Christenson et. al (USP 4, 705, 133). One skilled in the art can see clearly how this particular structure (28 and 29) operates in a similar fashion. Thus, a pivoting connection is shown in the application. Also, with these amendments to the claims, the “steerable” feature of the wheels is canceled from the claims, as requested by the Examiner.

Specification Objections

The specification has been amended to overcome the objections presented in the Office Action. Examiner objected to the use of the term “axle” throughout the specification. In the Detailed Description, the amendment has replaced the term “axle” when referring to element 28 with “shaft” to make clear that 28 is just a structure relative to which the wheels 26 pivot. The claims use the term “wheel mount” in place of “axle” to further make this clear as suggested by the Examiner. This allows one skilled in the art to realize that the structures designated by the numeral 28 in FIGS 2, 3 and 4 are simply wheel mounts. One skilled in the art will understand that the pivot mount 29 allows the wheels 26 to pivot with respect to the shaft 28 and that not shown are stub axles/spindles within the structure of the wheels that allow the wheels to rotate.

Examiner also objected to the use of the term "steerable" throughout the specification. Applicant has replaced the term "steerable" with "pivotable" as suggested by the Examiner to overcome the objection.

Amendments to the Abstract

The Abstract of the Disclosure has been amended to overcome the objection to the use of the term "steerable" by replacing that term with "pivotable."

Claim Rejections – 35 U.S.C. § 112

Claims 1-17 were rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the enablement requirement.

Section 112 states:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same, and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1 and 2 were rejected because it was not disclosed how the wheels are steered. These claims have been amended to exclude the use of the term "steerable" and replace it with "pivotable," as suggested by the Examiner, to clarify that the wheels are not directly steerable per se, but rather are able to pivot with respect to how the concrete pumping truck is steering and turning its main wheels.

Moreover, the term "axle" has been replaced by "shaft" and "wheel mount" in the Detailed Description and Claims respectively. Because of these replacements and FIGS. 3 and 4, one skilled in the art is enabled to make and use the invention. The use of the word "wheel mount" in the claims enables one skilled in the art to understand that the wheels are simply attached to these structures designated by the numeral 28, and contain a stub spindle/axle within them to allow them to rotate. In addition, the Drawings show clearly that the relationship between each steering arm 39, each wheel mount/shaft 28, and each pivot mount 29 allows the wheel mounts to be pivotally connected to a respective one of the pair of wheels. It is well known in the art how to construct one of these pivoting connections wherein the end vertically-

aligned cylindrical shape of wheel mount 28 is fitted within the clevis-type shape of pivot mount 29 and allowed to pivot around a pin driven vertically through the ends of the wheel mount and the pivot mount. This relationship between the wheel mount and pivot mount can be seen clearly in FIGS 3 and 4. Furthermore, FIG 4 shows how the steering arm 39 is connected to the bottom of the clevis-type shape of pivot mount 29. Steering arm 39 connects to the bottom of the pivot mount 29 and acts on it such that pivot mount 29 can rotate with respect to the wheel mount 28. One skilled in the art would be enabled to make and use this invention because of these Figures and amendments to the specification. Therefore, the specification complies with 35 U.S.C. § 112, first paragraph, and claims 1-17 are in condition for allowance.

Claim Rejections - 35 U.S.C. § 103

Claims 1-5, 7-9, and 11-14 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Applicant's Prior Art in FIG. 1 in view of Christenson et. al (USP 4, 705, 133) ("Christenson 1"), Christenson et. al (USP 4, 762, 421) ("Christenson 2") and as taught by Smith et al. (USP 6, 189, 901) ("Smith"). Claim 3 was further rejected under 35 U.S.C. § 103(a) as being unpatentable over Applicant's Prior Art FIG. 1 in view of Christenson 1 and Christenson 2 as applied to claims 1-5, 7-9 and 11-14, and further in view of Cherney et al. (USP 5, 897, 123) ("Cherney"). Claims 6 and 16 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Applicant's Prior Art FIG. 1 in view of Christenson 2 as applied to claims 1-5, 7-9 and 11-14, and further in view of French (USP 2, 650, 106) ("French"). Claims 10 and 15 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Applicant's Prior Art FIG. 1 in view of Christenson 2 as applied to claims 1-5, 7-9, and 11-14 above, and further in view of Smith. Claim 17 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Applicant's Prior Art FIG. 1 in view of Christenson 2 as applied to claims 1-5, 7-9 and 11-14, and further in view of Konop (USP 6, 247, 713) ("Konop").

General Response

In order to establish a prima facie case of obviousness, the examiner must establish three things: (1) the examiner must provide some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the references or to combine the reference teachings; (2) the examiner must provide some reasonable expectation of success; and (3) the examiner must show that the prior art references when combined teach or suggest all of the claim limitations. See M.P.E.P. § 706.02(j). With the foregoing amendments, the prima facie case for obviousness is no longer established.

The Office Action uses generally the argument that “[i]t is well known in the art to mount an auxiliary axle system at the rear of a work vehicle that typically hauls heavy loads.” The invention claimed and described in the specification, however, is specifically for concrete pumping trucks. The Office action appears to assume that because the prior art axle systems can be used on concrete mixer/transportation trucks (as seen in Christenson 1, Christenson 2, Konop, and Cherney) and refuse trucks (as seen in Smith) that they can be used or combined within themselves or with other prior art to add an auxiliary axle system to help distribute the weight of the concrete pumping truck.

The pumping truck is a distinct work vehicle separate from these other types of work vehicles for a number of reasons. First, as discussed at page 1 in the Background of the Invention, the axle system invented by Applicant is for the purposes of helping distribute the weight of the pumping truck *itself*, not any load it carries. Pumping trucks have increased in size so much recently that they can no longer access some roads due to weight restrictions. Second, the placement low to the ground of the hopper at the rear of the truck is meant to facilitate the use of the boom to distribute and transport concrete in many directions radially outward from the truck. Third, there is a need to keep the area directly behind the rear end clear of obstruction so the hopper and boom can be used. These factors make the use of any of the cited prior art or any combination thereof near impossible. The prior art devices referenced by the Office Action would get in the way of the rear of the vehicle if utilized on a concrete pumping truck.

Moreover, as discussed in Smith and in Applicant's specification, the use of these axle systems are to facilitate the distribution of weight over an extra axle as to meet the regulatory weight requirements for certain roads. Smith talks about the need for axle systems that are extended far enough away from the back main wheels of the refuse truck in order to distribute the weight over a greater distance yet close enough to remain within the length limits for those types of work vehicles. Smith solved this problem by creating a trailing axle system, something all of the prior art does, i.e. the wheels on the auxiliary axle system trail behind the main vehicle. Concrete pumping trucks present a different problem in that a concrete pumping truck needs an axle system that extends far enough away from the rear main wheels to be an effective distribution of weight, yet close enough to the back as to not interfere with the use of the hopper when in a stored position. Here, the structure of the rear of the pumping truck makes it almost impossible or at least very impractical to utilize a similar trailing axle system as used in every instance of prior art cited in the Office Action. The most the prior art could be said to suggest is an axle system that could "hoop" around the back of the pumping truck by extending the cross member far enough away from the mounting area, similar to how the main cross-beam 140 is oriented spatially in Smith, such that when the axle system is raised the cross member clears the hopper to the rear similar to how the axle system clears the bubble 30 in Smith. This is why the prior art fails to recognize or teach the problem presented by the concrete pumping truck. Of course, this is also why Applicant's invention is significant. Applicant solved the problem of the pumping truck's unique structure not being able to use the prior art's teachings by creating an axle system that is able to stay under the main structure of the truck. It does this by utilizing a unique U-shaped frame such that the open end is able to fit around the hopper so that the axle system's wheels are also able to be spaced far enough rearward from the main wheels to have an effective distribution of the truck's weight.

Each amended claim is discussed below to show how the amendments overcome the prima facie case for the obviousness rejection and provide for the allowance of claims 1-17.

Independent Claim 1

Claim 1 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Applicant's Prior Art Figure 1 in view of Christenson 1, Christenson 2, and as taught by Smith. In amending claim 1, limitations were included that require the auxiliary axle system to remain underneath any obstruction created by the concrete pumping truck and forward of the rearmost boundary of the truck, excluding any point a boom on the concrete pumping truck is able to reach. Smith shows a trailing axle system that is *never* within the boundaries of the truck. When it is deployed it trails long behind and when it is not deployed it is stored directly behind the rear of the refuse truck. Thus, Smith does not teach “[a] concrete pumping truck . . . comprising an auxiliary axle system pivotally attached to the rear end of the truck adjacent the hopper . . . the auxiliary axle system comprising a pair of pivotal wheels . . . the pivotal wheels being movable between a first position in contact with a ground surface and a second position elevated above the ground surface, the first and second positions and any positions in transition between the first and second positions allowing for the auxiliary axle system to remain forward of a farthest rearward point of the concrete pumping truck, excluding any point a boom on the concrete pumping truck is able to reach as well as remain under any obstruction above the auxiliary axle system that is created by the concrete pumping truck.” Nor do Christenson 1 and Christenson 2 teach this same limitation. As you can see from those references, their axle systems also trail the work vehicles and their support members or torque arms rise above any horizontal plane Applicant's invention is able to stay under. This is especially due to the fact that the torque arms in both Christenson 1 and Christenson 2 fold skyward as the wheels are drawn into a stored position. In light of the above amendments, the rejection of claim 1 under 35 U.S.C. § 103(a) should be withdrawn.

Independent claim 2

Claim 2 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Applicant's Prior Art Figure 1 in view of Christenson 1, Christenson 2, and as taught by Smith. In amending claim 2, limitations were included that emphasize the unique U-shape formed by the auxiliary axle system that is not found in

nor suggested by the prior art. In Smith, Christenson 1, and Christenson 2, there is no teaching or suggestion to utilize a “U-shaped frame” that has “rearwardly extending spaced arms” that “define[] an open space between the wheel mounts that provides clearance for the wheel mounts and pivotable wheels to be raised into the second position without interference with the hopper such that the respective wheel mounts and wheels are stored on opposite sides of the hopper in the second position.” It is readily seen that in Smith, Christenson 1, and Christenson 2, that there are additional cross members and tie rods directly in the space between the wheels of their respective axle systems and therefore could not teach or suggest a U-shaped frame that allows the wheels to be stored on opposite sides of the hopper. This claim has been amended to reflect the fact that the U-shaped frame’s opening is gaping towards the rear of the vehicle and is thereby able to slide into the second raised position without the hopper getting in the way. Therefore, Examiner’s argument, in discussing Christenson 2, that “[t]he inclusion of an additional raised cross beam (28) does not prevent the frame structure of Christenson et al. from being considered a ‘U-shaped frame’” is no longer valid. In light of the amendments, the inclusion of that cross beam does prevent the frame structure of Christenson from being considered a U-shaped frame with the same properties and utility as Applicant’s claimed U-shaped frame. Therefore, the rejection of independent claim 2 under 35 U.S.C. § 103(a) should be withdrawn.

Dependent claims 3-6

Dependent claims 3-6 depend from independent claim 2 and are allowable therewith. See M.P.E.P 2143.03, citing In re Fine, 5 U.S.P.Q.2d (BNA) 1596 (Fed. Cir. 1988). It is noted that Examiner specifically rejected claim 3 as unpatentable over Applicant’s Prior Art Figure 1 in view of Christenson 1, Christenson 2, and in further view of Cherney. It is also noted that Examiner rejected claim 6 as unpatentable over Applicant’s Prior Art Figure 1 in view of Christenson 1, Christenson 2, and in further view of French. However, the amendments to independent claim 2 from which they depend are such that the subject matter as a whole was not obvious at the time the invention was made. Therefore, the rejection of dependent claims 3-6 under 35 U.S.C. § 103(a) should be withdrawn.

Independent claim 7

Claim 7 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Applicant's Prior Art Figure 1 in view of Christenson 1, Christenson 2, and as taught by Smith. Similarly to independent claim 1, claim 7 now includes limitations that distinguishes it from the prior art. The same arguments applied under the discussion of independent claim 1 also apply here and therefore the rejection of independent claim 7 under 35 U.S.C. § 103(a) should be withdrawn.

Independent claim 8

Claim 8 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Applicant's Prior Art Figure 1 in view of Christenson 1, Christenson 2, and as taught by Smith. Claim 8 has been amended to recite "a U-shaped frame having a base at a forward end of the U-shaped frame connected to a pair of rearwardly extending arms . . . wherein the rearwardly extending spaced arms define an open space between the wheel mounts that provides clearance for the wheel mounts and pivotable wheels to fit around and store on either side of the hopper." Again, nothing in Christenson 1, Christenson 2, or Smith allows for or teaches a limitation of this type. The prior art does not contain any sort of open space in between their wheel mounts such that the wheels and wheel mounts could "fit around and store on either side of the hopper." Therefore, the rejection of independent claim 8 under 35 U.S.C. § 103(a) should be withdrawn.

Dependent claims 9-12

Dependent claims 9-12 depend from independent claim 8 and are allowable therewith. See M.P.E.P 2143.03, citing In re Fine, 5 U.S.P.Q.2d (BNA) 1596 (Fed. Cir. 1988). It is noted that Examiner specifically rejected claim 10 as unpatentable over Applicant's Prior Art Figure 1 in view of Christenson 2, and in further view of Smith. However, the amendments to independent claim 8 from which claim 10 depends are such that the subject matter as a whole was not obvious at the time the invention was made. Therefore, the rejection of dependent claims 9-12 under 35 U.S.C. § 103(a) should be withdrawn.

Independent claim 13

Claim 13 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Applicant's Prior Art Figure 1 in view of Christenson 1, Christenson 2, and as taught by Smith. Claim 13 has been amended so that the U-shaped frame is distinguished from the prior art in that "the cross member and the pair of support arms define[] a U-shaped frame wherein an open space between the rearward ends of the arms of the U-shaped frame is large enough to allow the U-shaped frame to fit around the hopper." Again, nothing in Christenson 1, Christenson 2, or Smith allows for or teaches a limitation of this type. The cross member is recited as being distinctly spaced forward from the wheels and wheel mounts in this claim, unlike Christenson 1 and Christenson 2 which teach that cross members are connected between the wheels and wheel mounts. Also, the limitation that recites an open space between the wheels and wheel mounts such that the U-shaped frame can fit around the hopper with its base spaced forward from that hopper is unlike Smith, which teaches that the cross member can be spaced forward from the wheels but does not teach or suggest a way to make a U-shaped frame fit around a hopper. Therefore, the rejection of independent claim 13 under 35 U.S.C. § 103(a) should be withdrawn.

Dependent claims 14-17

Dependent claims 14-17 depend from independent claim 13 and are allowable therewith. See M.P.E.P 2143.03, citing In re Fine, 5 U.S.P.Q.2d (BNA) 1596 (Fed. Cir. 1988). It is noted that Examiner specifically rejected claim 15 as unpatentable over Applicant's Prior Art Figure 1 in view of Christenson 2, and in further view of Smith. It is noted that Examiner specifically rejected claim 16 as unpatentable over Applicant's Prior Art Figure 1 in view of Christenson 1, Christenson 2, and in further view of French. It is finally noted that Examiner rejected claim 17 as unpatentable over Applicant's Prior Art Figure 1 in view of Christenson 2 and in further view of Konop. However, the amendments to independent claim 13 from which they depend are such that the subject matter as a whole was not obvious at the time the invention was made. Therefore, the rejection of dependent claims 14-17 under 35 U.S.C. § 103(a) should be withdrawn.

Conclusion

The claims have been amended such that the prima facie case for obviousness is no longer established. In summary, there are two main points to be kept in mind that allows one to see that Applicant's invention is distinguishable from the prior art, is not taught by the prior art, and is therefore non-obvious. (1) Applicant's claimed invention allows for a compact auxiliary axle system that can remain underneath the main structure of the truck and does not have to trail behind the main structure of the truck; and (2) Applicant's claimed invention shows a unique U-shaped frame that has never been previously used or shown in the prior art in order to accommodate the unique structure of a concrete pumping truck and its hopper by featuring a cross member placed forward from the axle system's wheels and an absolute open space between the ends of the arms of the U-shaped frame.

With respect to the actual elements of the prima facie case for obviousness, there are no suggestions or motivations in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the references or to combine the reference teachings to create Applicant's invention. Moreover, the prior art references when combined do not teach or suggest all of the newly amended claim limitations.

In view of the foregoing, claims 1-17 are in condition for allowance. A notice to that effect is requested. The Examiner is invited to contact the undersigned at the telephone number listed below if such a call would in any way facilitate the allowance of this application.

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The Commissioner is authorized to charge any additional fees associated with this paper or credit any overpayment to Deposit Account No. 11-0982.

Respectfully submitted,
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